

REMARKS/ARGUMENTS

I. Status of the Claims

Claims 1, 3, 9-10, 13, 18, 25-26, 29, 34, 35, 37, 38, 43, 50, 52, 60 and 61 are amended. Claims 1-7, 9-23, 25-35, 37-38, and 40-61 are pending with entry of this Amendment.

II. Support for the Amendments

Support for the amendments to the claims can be found throughout the specification, the drawings, and the claims as originally drafted. The amendments to the claims generally involve restatement of the substantially the same claim scope in clearer language. Support for the amendment to claim 3 finds support on, e.g., page 4, lines 13-19 of the specification. No new matter is introduced with this amendment.

III. Rejection under 35 U.S.C. § 112, second paragraph

Claims 1, 18, 43, 60 and 61 were rejected under 35 U.S.C. § 112, second paragraph as allegedly indefinite because the relationship between step one and steps two and three is allegedly unclear.

Applicants respectfully traverse the rejection. As amended, the claims recite methods of identifying repeat-free subsequences, rather than "repeat sequences." The second and third steps of the claims are directed to comparing the repeat-free subsequences to a nucleotide database and identifying primer sequences within those sequences lacking similarity to those in the database. Accordingly, it is clear that the first step is used in correspondence with the second step to identify only those sequences that do not contain repeats and that are not similar to sequences in the database.

The scope of the claims is not changed by this amendment. The first step involves identifying repeat-free subsequences. This can be done, for example, by identifying repeated sequences and discarding them, thereby leaving repeat-free subsequences.

In view of the above arguments, Applicants respectfully request withdrawal of the rejection.

Claims 1, 18, 34, 43, 60 and 61 were also rejected as indefinite for reciting the phrase "suitable for use as primers." Specifically, the Examiner argues that because the step does not recite parameters for identifying the primers, it is unclear what is intended. Applicants respectfully traverse the rejection.

Identification of sequences that are suitable for use in amplification reactions is well known. The Examiner argues that because specific criteria are not provided, the claim is unclear. Applicants submit that those of skill in the art would readily understand "suitable as primers in an amplification reaction" means just that, i.e., the primers will work to amplify a target if amplification reagents and template are provided. As described in the specification, primers are generally designed to provide a specific length of amplification product as well as to avoid primer secondary structure and optionally to include restriction sites. *See, e.g.*, page 12, lines 18-32 of the specification. Indeed, as discussed in the specification, as of the filing date, there were numerous computer programs available to identify amplification primer sequences. Thus, Applicants submit that the claims do not require a particular algorithm or criteria for selection or amplification primers to be clear. Applicants therefore request withdrawal of the rejection.

Claims 3, 20 and 35 were rejected as indefinite because there are allegedly no parameters set forth to "identify." If Applicants understand correctly, the Examiner argues that the rejected claims do not further limit the independent claims. Applicants respectfully traverse the rejection.

The third step of the independent claims is generally directed to designing primers for use to amplify repeat-free sequences that have 5 or fewer homologs (i.e., 50% identical). The rejected claims (3, 20, and 35) further limit the claimed methods to the identification of primers that amplify sequences that lack any homologs (e.g., "wherein the database has no sequences at least 50% identical to the repeat sequence-free subsequence"). Thus, while the third step of the independent claims allows for identification of primers for amplifying sequences with some homologs of specified percent identity in the database, claims 3, 25 and 40 only allow for

identification of primers that amplify sequences with no homologs in the database. Thus, the dependent claims have a narrower scope than the independent claims.

As for how to identify the primers that amplify the desired sequences of claim 3, those of skill in the art would understand to generate primer sequences based on repeat-free sequences that did not have any homolog at least 50% identical in the database. Those sequences identified as lacking any homologous sequences would form the basis of primer sequences as is well known in the art.

In view of the above arguments, Applicants request withdrawal of the rejection.

Claims 4-7, 21-23 and 45-48 were also rejected as indefinite. The Examiner alleged that "one skilled in the art would not know what product is intended to be output/synthesized." *See*, Office Action, page 3. Applicants respectfully traverse the rejection.

It is inappropriate to require that a specific sequence be generated for allowance of claims comprising an "outputting" step. The claims clearly provide a method of identifying primer sequences and therefore a step of "outputting" the sequences is not indefinite. If the Examiner's assertions were correct, it would be impossible to issue any method claims that did not specify the exact composition and dimensions of the method's product. That simply is not the state of the patent law.

The claims at issue are directed to how primer sequences identified according to the methods of the independent claims are set forth for either human or computer review. For example, the claims include those directed to displaying the sequences on a computer screen or in a printout, directing an oligonucleotide synthesizer to make the primers, or ordering the primers from a different source, i.e., via the internet). In each of these cases, the primer sequence is generated according to the methods of the independent claims. Applicants therefore respectfully request withdrawal of the rejection.

The Examiner also rejected claims 9, 10, 25 and 26 as indefinite because it is allegedly unclear whether the rejected claims modify step 1 or step 2 or both of the independent claims.

Amended claims 9, 10, 25 and 26 are directed to modifying the third step of the independent claims such that primers are selected that amplify repeat-free subsequences wherein the database has no sequences at least 70% or 90% identical to the repeat sequence-free subsequence. Accordingly, Applicants respectfully request withdrawal of the rejection.

The Examiner rejected claims 13, 29 and 53 for including a reference to a trademark (Primer3), which the Examiner asserted rendered the claim indefinite. Applicants respectfully traverse the rejection. As amended, the claims recite "primer design software" and do not recite "Primer3." Accordingly, Applicants respectfully request withdrawal of the rejection.

The Examiner rejected claim 35 as unclear whether it is directed to code or a method. As amended, the claim specifies that the program comprises code for causing a computer to perform the recited method. Accordingly, Applicants request withdrawal of the rejection.

Appl. No. 09/766,450
Amdt. dated December 11, 2003
Reply to Office Action of September 11, 2003

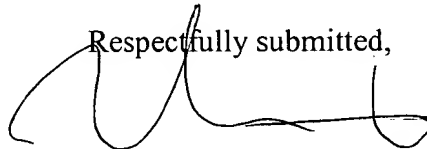
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CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Matthew E. Hinsch', written over the text 'Respectfully submitted,'.

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